



Standard Specification for MINERAL FIBER PREFORMED PIPE INSULATION¹

This Standard is issued under the fixed designation C 547; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval.

1. Scope

1.1 This specification covers the composition, sizes, dimensions, and physical properties of mineral fiber preformed pipe insulation for use on surfaces up to 1200°F (650°C). For specific applications the actual temperature limits shall be as agreed upon between the manufacturer and the purchaser.

NOTE 1—For satisfactory performance, properly installed protective vapor barriers must be used in low-temperature applications to prevent movement of moisture through or around the insulation towards the colder surface.

NOTE 2—The values stated in U.S. customary units are to be regarded as the standard.

2. Applicable Documents

2.1 ASTM Standards:

- C 168, Definitions of Terms Relating to Thermal Insulating Materials²
- C 302, Test for Density of Preformed Pipe-Covering-Type Thermal Insulation²
- C 335, Test for Thermal Conductivity of Pipe Insulation²
- C 356, Test for Linear Shrinkage of Preformed High-Temperature Thermal Insulation Subjected to Soaking Heat²
- C 390, Sampling Preformed Thermal Insulation²
- C 585, Recommended Practice for Inner and Outer Diameters of Rigid Thermal Insulation for Nominal Sizes of Pipe and Tubing (NPS System)²

3. Classification

3.1 Classes of mineral fiber preformed pipe insulation are included as follows:

- 3.1.1 *Class 1*—For use to 450°F (230°C).
- 3.1.2 *Class 2*—For use to 650°F (345°C).
- 3.1.3 *Class 3*—For use to 1200°F (650°C).

4. Definitions

4.1 Definitions C 168 shall be considered as applying to the terms used in this specification.

5. Materials and Manufacture

5.1 *Composition*—The mineral fiber thermal insulation for pipes shall be manufactured from mineral substances such as rock, slag, or glass processed from a molten state into fibrous form, with organic binder.

5.2 *Jackets (Facings)*—The purchaser shall specify whether the pipe insulation shall be jacketed or plain and, if jacketed, shall specify the type.

6. Physical Requirements

6.1 The insulation shall conform to the physical requirements specified in Table 1.

7. Standard Shapes, Sizes, and Dimensions

7.1 The mineral fiber pipe insulation shall be supplied as hollow cylinders split lengthwise on one or both sides of the cylindrical axis and shall be furnished in sections or segments in a length of 3 ft (0.91 m) to fit standard sizes of pipe and tubing. Thicknesses regularly furnished shall range from nominal ½ in. (13 mm) to nominal 4 in. (102 mm) in ½-in. increments. Thickness greater than 2 in. (51 mm) may be furnished in multiple layers. Individual dimensions shall conform to those specified by the

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² Annual Book of ASTM Standards, Part 18.



manufacturer and nesting thicknesses should follow Recommended Practice C 585.

8. Dimensional Tolerances

8.1 The average measured length and thickness of any individual section or segment shall not differ from the manufacturer's standard dimension by more than the following:

Dimension	Tolerances, in. (mm)
Length	$\pm \frac{1}{8}$ (3)
Thickness	$\pm \frac{1}{8}$ (3)

When installed on the pipe of the specified size, sections shall fit snugly and shall have tight longitudinal and circumferential joints.

9. Workmanship

9.1 The insulation shall not have visible defects that will adversely affect its service qualities.

10. Sampling

10.1 The insulation shall be sampled for the purpose of tests in accordance with Method C 390.

11. Test Methods

11.1 The properties enumerated in this specification shall be determined in accordance with the following methods:

11.1.1 *Density*—Method C 302.

11.1.2 *Linear Shrinkage*—Method C 356.

11.1.3 *Thermal Conductivity*—Method

C 335.

12. Inspection and Rejection

12.1 *Inspection*—When agreed to by the purchaser and the manufacturer or supplier, the inspection of the material shall be made at either the point of shipment or point of delivery.

12.2 *Rejection*:

12.2.1 If inspection of the sample shows failure to conform to the requirements of the specification, a second sample from the same lot shall be tested and the results of this retest averaged with the results of the original test.

12.2.2 Upon retest as described in 12.2.1, failure to conform to this specification shall constitute grounds for rejection.

12.2.3 In case of rejection, the manufacturer or supplier shall have the right to reinspect the rejected shipment and resubmit the lot after removal of that portion of the shipment not conforming to the specified requirements.

13. Packaging and Marking

13.1 *Packaging*—Unless otherwise agreed or specified between the purchaser and manufacturer or supplier, mineral fiber molded pipe insulation shall be packaged in the manufacturer's standard commercial containers.

13.2 *Marking*—Unless otherwise specified, containers shall be marked with the name of the material, the supplier's name, the specification class, the pipe size for which it is intended, the nominal thickness, and the quantity of the material in the container.